JEFFERSON COLLEGE

COURSE SYLLABUS

RCP160

Arterial Blood Gases

2 Credit Hours

Prepared by:
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Created on Date: 4/15/11

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Mary Beth Ottinger, Division Chair
RCP160 Arterial Blood Gases

I. CATALOGUE DESCRIPTION
   A. Prerequisite: RCP130 Cardiopulmonary Pharmacology, RCP120 Respiratory Equipment and Noncritical Floor Care, RCP125 Respiratory Care Skills Lab I, RCP110 Cardiopulmonary Anatomy and Physiology, RCP100 Introduction to Respiratory Care—all courses must be completed with a grade of “C” or better

   B. Credit hour award - 2

   C. Description - This course covers the theory and application of the Henderson-Hasselbach Equation, oxygen dissociation curve, oxygen uptake, transport, and consumption, oxygen and carbon exchange, renal physiology, and arterial and venous gas tensions. Clinical application for obtaining arterial samples, and interpretation of results will be covered. (Su)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

<table>
<thead>
<tr>
<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>Describe proper form of transporting arterial and mixed venous gases</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Demonstrate the correct method for obtaining arterial and mixed venous blood gases</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Describe metabolic processes for regulation of acid base balance and oxygenation</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Demonstrate the proper use of equations in the calculations of blood gas results</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<td>Apply blood gas results to clinical situations and determine proper response</td>
<td>Class activity</td>
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<td>to all types of patient’s needs</td>
<td>Homework</td>
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<td>Summative Exam</td>
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<td>Analyze patients to determine proper monitoring of acid base and oxygenation status and</td>
<td>Class activity</td>
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<td>to determine appropriate responsive therapy</td>
<td>Homework</td>
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<td>Interpret the accuracy of blood gases and non invasive monitoring of metabolic and</td>
<td>Class activity</td>
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<td>oxygenation status</td>
<td>Homework</td>
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<td>Summative Exam</td>
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<td>Describe the process for arterial line insertion</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Recognize and determine proper intervention for complications of arterial blood gases and</td>
<td>Class activity</td>
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<td>arterial lines</td>
<td>Homework</td>
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<td>Demonstrate proper quality control assessments and interventions on a variety of blood</td>
<td>Class activity</td>
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<td>gas analyzers and noninvasive equipment</td>
<td>Homework</td>
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<td>Summative Exam</td>
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III. COURSE OUTLINE
   A. Introduction to Blood Gases
      1. Arterial Blood Gases
         a. Types
         b. Normals
      2. Blood Gas Classifications
         a. Acid-base status
         b. Compensation
         c. Oxygenation status
      3. Noninvasive techniques
         a. Pulse oximetry
         b. Transcutaneous
         c. Capnometry
         d. Exercise
   B. Technical Issues in Blood Gas Analysis
      1. Blood gas sampling and errors
         a. Errors
         b. Measuring
         c. Electrolytes
      2. Blood gas electrodes and quality assurance
      3. Checking for accuracy and metabolic indices
   C. Basic Physiology
      1. External respiration and oxygenation
      2. Internal respiration and oxygenation
      3. Acid-base homeostasis
   D. Clinical Oxygenation
      1. Assessment of hypoxemia and shunting
      2. Treatment of hypoxemia
      3. Hypoxia assessment and intervention
   E. Clinical Acid Base
      1. Regulation of acids, bases, and electrolytes
      2. Differential diagnosis of acid-base disturbances
      3. Mixed acid-base disturbances and treatment

IV. METHOD(S) OF INSTRUCTION:
   A. Lecture
   B. Readings from textbook
   C. Supplemental handouts
   D. Classroom activities
   E. Participation in active learning by computer programs, games, and internet based activities.
   F. Peer interactive activities and discussions in classroom and online

V. REQUIRED TEXTBOOK:

VI. REQUIRED MATERIALS
   A. Course homepage available through jeffco.edu
   B. A computer with internet access (available through the Jefferson College Labs).
C. Paper, notebooks, pens, pencils with erasers.

VII. SUPPLEMENTAL REFERENCES
A. Class handouts
B. Videos

VIII. METHOD OF EVALUATION (basis for determining course grade)
A. Classroom activities 10%
B. Homework 20%
C. Summation examinations-comprehensive 60% - Final is worth at least 30% of total grade
D. Attendance 10%
E. Grading scale: 
   A=92-100%
   B=86-91.9%
   C=80-85.9%
   D=70-79.9%
   F=0-69.9%

IX. ADA STATEMENT
Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-797-3000, ext. 169).

X. ACADEMIC HONESTY STATEMENT
All students are responsible for complying with campus policies as stated in the Student Handbook. Any student who cheats or plagiarizes will be subject to dismissal from the respiratory program and will be referred to the college for disciplinary action. (see College website, http://www.jeffco.edu/jeffco/index.php?option=com_weblinks&catid=26&Itemid=84)